

ABSTRACT OF THE DISCLOSURE

A system for detecting and analyzing chemical and biological materials in a sample. The system includes a spectrometer for passively receiving emissions from the sample in the terahertz frequency band to detect the materials therein. A telescope or other device can be used to confine the field-of-view of the spectrometer. A cold surface is positioned filling the field-of-view of the spectrometer at an opposite side of the sample from the spectrometer. The cold surface provides a low temperature background relative to the sample so as to reduce the background emission and enhance the detection of the emission from the sample.